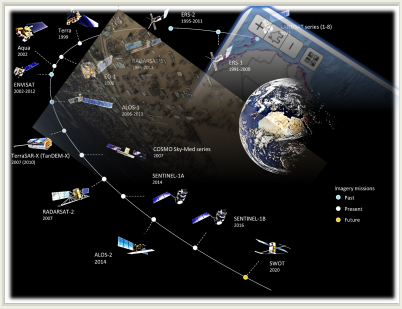
Small Business Innovation Research/Small Business Tech Transfer

An Interoperable Decision Support System for Flood Disaster Response Assistance, Phase I

Completed Technology Project (2017 - 2017)

Project Introduction

There is a plethora of remotely sensed information and geospatial data (from models, OpenStreetMap, etc.) available to describe and quantify the processes, magnitude, frequency and impacts of floods. Ongoing NASA (and other space agencies e.g. ESA, ISA, JAXA) missions provide an enormous volume of free data that can deliver information at the appropriate temporal and spatial resolution for flood disaster management and emergency response spanning the natural process of a flood event from "clouds to inundation" or "mitigation to response". However, information is under-utilized by response teams, mostly because of its relative novelty and unintuitive access: (1)difficulties in obtaining information within the timeframe for mitigation, preparedness, response/recovery, (2)confusion as to the most appropriate data assets for a flood situation, (3)limited time and personnel capacity to process and handle new types of datasets; (4)limited bandwidth for large file sharing capacity in deep-field environments (5)incompatibility between user mapping platforms and geospatial data formats; (6)data availability may be simply unknown and/or data latency may be inadequate; and (5) limited understanding by scientists and engineers about end user operational requirements. This problem was discussed by emergency, science academic, and private sector experts during a workshop on "Flood Response" in June 2016. The top priority action item agreed upon was the need to build a "one-stop-shop" online GUI that was built on OGC standards and had a number of end-user guided "wish items", such as depicting and predicting extent and location of impact area for data acquisition tasking.In order to address these needs, we propose to deliver flood-related NASA and other geospatial data layers to flood emergency managers and responders in an easily accessible format using an online Decision Support System that will integrate with end-user operation systems and provide relevant, timely information.



An Interoperable Decision Support System for Flood Disaster Response Assistance, Phase I Briefing Chart Image

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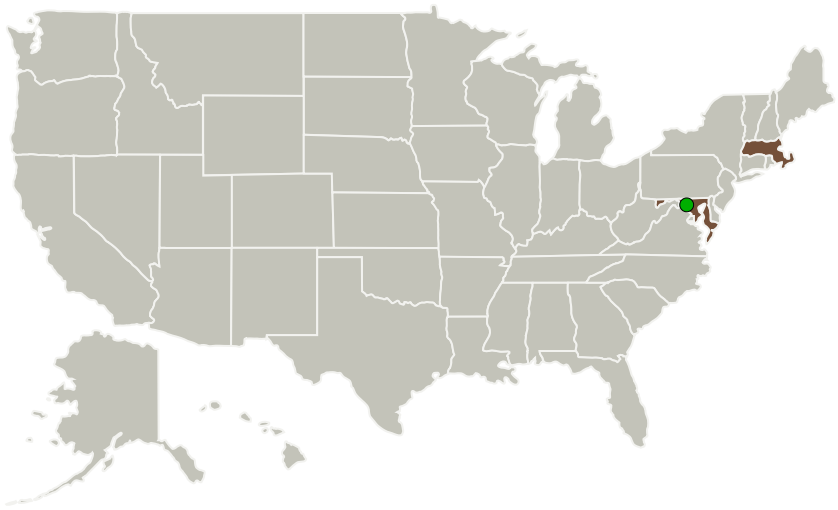
Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Remote Sensing Solutions, Inc.	Lead Organization	Industry	Barnstable, Massachusetts
Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland

Primary U.S. Work Locations	
Maryland	Massachusetts

Project Transitions

June 2017: Project Start

December 2017: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/140781)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Remote Sensing Solutions, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

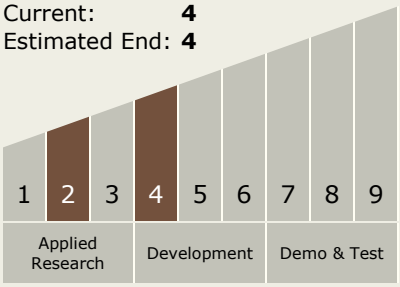
Carlos Torrez

Principal Investigator:

Guy J Schumann

Technology Maturity (TRL)

Start: **2**
Current: **4**
Estimated End: **4**



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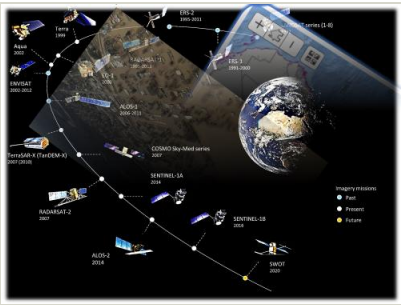
Images



Briefing Chart Image
An Interoperable Decision Support System for Flood Disaster Response Assistance, Phase I Briefing Chart Image
(https://techport.nasa.gov/image/132956)

Technology Areas

Primary:

- TX11 Software, Modeling, Simulation, and Information Processing
  - TX11.6 Ground Computing
    - TX11.6.5 Public Cloud Supercomputer